

COMMUNICATION GAP AND TRAINING NEEDS OF PAKISTAN'S AGRICULTURAL EXTENSION AGENTS IN HORTICULTURE

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ABSTRACT

Agricultural Extension is very important and modern technology can not be sent to the end users until and unless well qualified and trained Agriculture Extension Officers (AEOs) take this responsibility and pin point those areas which needs special attention. AEOs are key stakeholders and play crucial role in the extension services, particularly in rural development and agriculture. They play an important developmental role by imparting and disseminating knowledge and education particularly to farmers regarding modern production technology. This study based on self assessment of the competency of AEOs in horticulture, was conducted in Khyber Pakhtunkhwa Pakistan, which is famous for fruits and vegetables. Data was collected from all the AEOs through a mailed questionnaire. It is found that there are differences between the existing and expected technical competencies in horticulture. The study reveals that there are significant differences in the technical competencies of the agricultural officials based on by their attendance in training programs provided as well as specialization. Since productivity in many horticulture products has been declining during the past two decades, the need for training and imparting specialized scientific and technical education to extension officers is a dire need. Web diagram shows that AEOs urgently need in-service training to enhance their knowledge regarding horticulture. The horticulture is chosen keeping in view its economic and nutritional value and acute shortage of fruits. Moreover, the secondary data also support this fact (as indicated by statistics that per hectare availability is less than 144kgs (GOP 2008-09). The problem is further complicated due to ever increasing population growth in the country. As a result only 10% of the total population can afford to buy fruits in Pakistan It is further recommended that effective measures should be initiated in order to lessen the communication gap between the possessed and the required level of technical competencies.

Key Words: Agriculture extension officers, horticulture, Communication gap, agriculture extension services

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INTRODUCTION

Agriculture is one of the predominant sectors of Pakistan's economy. Pakistan, lies between latitude 24° to 37° N and longitude 60° to 75°E. Its climate is semi-arid. Agriculture continues to be the single most pre-dominant sector of the economy Agriculture contributes about 21.8% to GDP and provides employment to 44.7% civilian labor force (GOP, 2008-09). Agricultural Extension Department is responsible for transferring of agricultural technology and providing technical guidance to farmers for improving agricultural practices to increase agricultural productivity. Previous failure in achieving self-sufficiency in major agricultural products has always been ascribed to inefficiency of our agriculture extension services. (Urooba, 2001; Idrees, 1994; Ahmad, 1993; Iqbal, 1990; Hussain, 1983; Hayat, 1982; Naz, 1987 and Muhammad, 1981) .

Topographically and climatically this province is suitable for growing good quality fruits like apricot, apples, plums, peaches etc. Khyber Pakhtunkhwa is known for production of quality temperate fruits though some tropical fruits are grown in southern parts of the province. Off season cool season vegetables are also grown at higher elevation in the province and they sell at premium price in the provincial and federal capitals as well as in other big cities during summer seasons. Khyber Pakhtunkhwa is one of the four provinces in Pakistan with an area of 10.17 million hectares and a population of 20,215,000 heads. Its capital is the city of Peshawar. Being one of the most ancient cities in Central, South and West Asia, Peshawar has for centuries been a centre of trade between Afghanistan, South Asia, Central Asia and Middle East (GoP 2008-09).

Fruits and vegetables can play a very significant role in the economy Khyber Pakhtunkhwa (KPK) where, horticulture has a great potential for economic growth and development.

In Khyber Pakhtunkhwa, tomato, potato, chilly and eggplant are major summer vegetables; whereas pea, cauliflower, cabbage, broccoli, radish, turnip and lettuce are the winter vegetables. Since the average landholding of farmer is less than five hectares in the province, horticulture can emerge as a major earner for small farmers. On a national basis, horticulture accounts for six per cent of the GDP. In this province, during the past 20 years, the productivity of various vegetables has decreased and matter of serious concern.

Table I Change in vegetable productivity in Khyber Pakhtunkhwa over two decades

Vegetable	Change in production (%)
Eggplant	- 16.8
Okra	- 9.9
Chilly	- 16.6
Coriander	- 25
Turnip	- 10.2
Radish	- 14.8
Cauliflower	- 9.8
Spinach	- 14
Tomato	+ 4.8
Potato	+ 20.4
Pea	+ 29

Fruits and vegetables are special crops and their production technologies, constraints and problems are quite different than field crops. The AEOs need to equip themselves with most updated and advanced knowledge on the best varieties and best production techniques so that they could properly advise the fruits and vegetable growers in their respective circles.

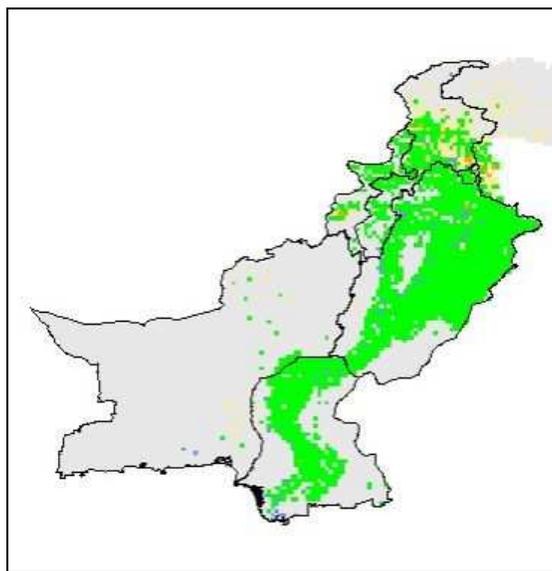


Fig. 1. Permanent crop cover in Khyber Pakhtunkhwa through GIS/remote sensing (courtesy FAO)

Acknowledging this situation in KP-Pakistan, this study of the Horticulture competency of Agriculture Officers was carried out to examine existing levels of competency and to assess the required level of competency needed by them for their job performance.

MATERIALS AND METHODS

This study was conducted in all 24 districts of Khyber Pakhtunkhwa of Pakistan where the total number of AEOs is 111. The study was based on both primary and secondary data. Primary data were collected through a carefully prepared and pre-tested questionnaire. Secondary data were obtained through the published sources. Questionnaires were mailed to AEOs and their meetings were arranged at district level through management of the Agriculture Extension Department to explain the survey questionnaire. Selected competencies identified were based on job description of AEOs.

Several researchers have followed this approach in the past (Ali, 1991; Randavary and Vaughn, 1991; Najjingo *et al.*, 1991 and Easter, 1985). A Likert scale was used to identify the level and intensity of technical competencies. The AEOs assessed their competencies by themselves at two levels: competencies they currently possessed and the required level of skill as perceived by them on 1-5 Likert scale, where 1 show very low and 5 represents very high level of competency.

In this study, the scaling of index value was between 0 and 1. There are five parameters where a scale step can be constructed into five categories (parameters). Scaling for possessed and required competencies was assigned values ranging from 0.00 to 1.00 into five scales. The scales were assigned values 0.00 - 0.20 (very low), 0.21 - 0.40 (low), 0.41 - 0.60 (moderate), 0.61 - 0.80 (high) and 0.81 - 1.00 (very high). Information on demographic and social characteristics and professional competencies perceived by AEOs were also collected by the survey questionnaire. The weighted average index of technical competencies both on existing and expected level perceived by AEOs based on the five scale assigned values (Qadeer, 1993).

Analysis of differences of Technical Competency Level by Demographic and Social Characteristics

To ascertain the differences between demographic and social characteristics and levels of technical competencies of the AEOs, the T-test was applied. The F-test was also employed to analyze the differences between the technical competencies of each aspect in comparison between the existing and the expected levels perceived by the AEOs.

RESULTS AND DISCUSSION

The research under reference is based on different results derived from primary as well as secondary data as per detailed below:

Age

Descriptive statistics of age and professional experience of AEOs reveal that the mean age of Agriculture Extension Officer was 44.21 years with a range of 25-60 years. Newly recruited respondents were only 12.6 % of the total respondents. Majority of respondents were in the age group of 41-50 years, as depicted in Table II.

Table II *Distribution of agricultural extension officers by age*

Age (Years)	Frequency	Percent
25 – 35	14	12.61
36 – 45	19	17.12
46 – 55	47	42.34
56 above	31	27.93
Total	111	100.00
Average	44.21	
Minimum: 25 Maximum: 60		

Source: Field Survey

Professional Experience

Professional experience of respondents ranged from 1-34 years. Mean job experience was 16.81. About 66% of AEOs had job experience up to 20 years while about 20 % of them had been newly recruited having 5 or more than 5 years of job experience as AEOs.

Table III *Distribution of agricultural extension officers by professional experience*

Experience (in years)	Frequency	Percent
1 – 5	22	19.80
6 – 10	3	2.70
11 – 15	16	14.40
16 – 20	32	29.00
21 – 25	30	26.90
26 and above	8	7.20
Total	111	100.00
Average	16.81	

Source: Field Survey

Possessed and Required Level of Technical Competency of Agricultural Extension Officers in Horticulture

The Agriculture Officers (AEOs) rated their technical competencies as well as the required levels for their job performance. The gap between required and possessed levels of AEOs was considered as training gap in the identified competencies. The data regarding their perception is shown in Table IV.

Table IV *Self perceived competency level of agricultural extension officers in horticultural crops*

Parameters	Existing Level	Over All Performance	Expected Level	Over All Performance	T-test (P-value)
Explain latest technology regarding getting better production of vegetables	0.73	High	0.91	Very High	0.000**
Describe agricultural recommendations regarding vegetables	0.75	High	0.91	Very High	0.000**
Describe the plant protection measures regarding vegetables	0.74	High	0.91	Very High	0.000**
Describe agricultural recommendations regarding fruit crops	0.74	High	0.91	Very High	0.000**
Describe agricultural recommendations regarding floriculture	0.60	Moderate	0.86	Very High	0.000**
Average	0.71		0.90	Dif. = 0.19	

** T-test is significant at the 0.01 level

Source: Field Survey, 2007

RESULTUS AND DISCUSSION***Low Ranking in Self Observed Competency***

The data on self perceived technical competency of the agriculture extension officers of Pakistan show that the possessed competency is lower than the competency that are required to deliver the agricultural services to the farmers. The difference of the indices between required and possessed competencies has been termed as “Training Gap” of the AEOs.

Out of the five parameters used to assess the technical competencies of AEOs, “Describe agricultural recommendations regarding vegetables and the description of plant protection measures regarding vegetables” has been ranked as good in terms of the AEOs possessed competencies. The lowest competencies index is observed in the category (parameter) “Describe agricultural recommendations regarding floriculture” possessed by the AEOs. This is the category which has the highest gap among all the categories measured to calculate technical competencies delivering agricultural extension services to the farmers.

The performance of the AEOs in terms of “Describe agricultural recommendations regarding vegetables and the description of plant protection measures regarding vegetables” is close to as required competency showing the smallest gap among all the categories discussed. The average index of all the categories for both “possessed” and “required” are 0.70 (High) and 0.89 (High) respectively where 0 represents the lowest value and 1 represents the highest value. The overall training gap is observed as 0.19 that means existing competency is lagging behind by 19 percent of the competency required to fulfill the farmers’ need according to the self evaluation of the AEOs.

According to the report of Mwanga and Cloete, (2007), the food priorities of the region can be addressed by focusing attention on important horticultural crops and critical issues.

Need for Training

The present findings reveal that the Agriculture Extension Officers in Khyber Pakhtunkhwa should be trained in the horticultural related activities as the demand for fruits, vegetables and flowers are increasing and there is an increasing pressure on horticulturist to produce more fruits, vegetable and flowers with the changing lifestyle and eating habits. With the elevation of the social status of ordinary people, the demand for fruits, vegetable and flowers has also gone up; leading to a greater demand in the diversity of these horticultural crops.

Comparison between Existing and Expected Competencies

The competencies of the existing and expected competencies in horticulture assessed by AEOs themselves are shown by a web-radar diagram in Fig. 3.

The difference between the required and possessed level of competencies in the horticulture based on their WAI values is depicted in Fig. 3 and is presented in Table IV.

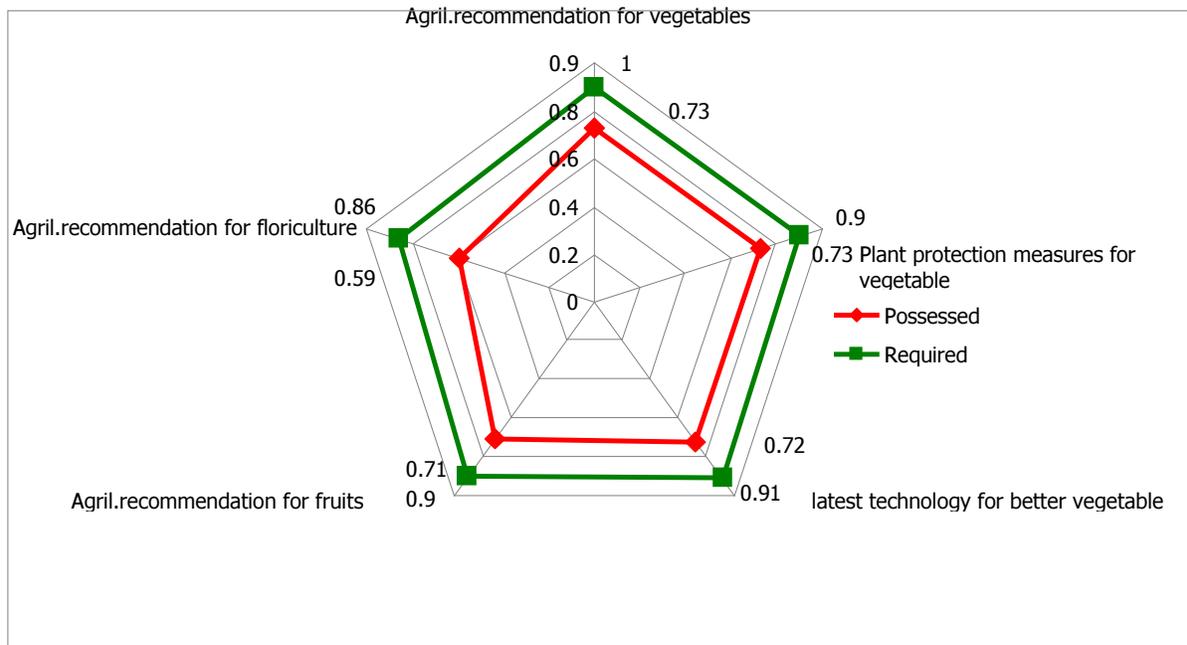


Fig. 3. Comparison between possessed and required level of competency of AEOs

Table V Factors associated with technical competencies of horticultural crops

Factors (Independent)	Correlation Co- efficient Value	Significant level
Age	0.503	0.584
Job Experience	0.064	0.503
Professional Qualifications	0.154	0.108
Specializations	-0.208*	0.028
Family background	0.028	0.767
Domicile	-0.101	0.290
Previous Experience in Farming	-0.082	0.392
Attendance of Irregular Training Programme	-0.195*	0.041

Source: Field Survey, 2007

Analysis of Technical Competencies in Horticultural Crops of AEOs by Demographic and Social Characteristics

Specialization during student life in agricultural institutions and attendance of irregular training programs are significantly contributing to promote the technical competencies of AEOs in horticultural crops. On the other hand, demographic factors do not significantly contribute for respondents who have a background in Horticulture. Several studies reveal that Extension specialists are one of the preliminary sources of awareness and information for the county agents (Radhakrishna and Thompson, 1996; Shih and Evans, 1991). Fast and rapid changes in society, technological advancements, complicated roles and responsibilities of professionals require continuing education, life learning, in-service training and in most cases, graduate education

(Merriam & Caffarella, 1991). The duties of an AEO include transfer of technology, evaluation performance of new varieties and technologies, and training of farmers for adoption of modern and scientific technologies.

Training is the only effective means for the extension agents to equip themselves with the new developments in agriculture. Darkenwald and Merriam (1982) emphasized the importance of staff development to stimulate intellect, increase knowledge, keep abreast of new advances and developments and for organizational effectiveness through trainings. According to World Bank report (2008), agricultural extension helps farmers learn how to augment their productivity, raise their incomes and collaborate with one another. Extension programs are shifting from prescribing technological practices to focusing more on capacity building among rural community to identify and take advantage of available opportunities. To perform such a wide range of roles, extension officers must be trained in areas beyond technical agriculture to build skills in mobilizing farmers. Lodhi (2003) identified lack of training of the organizational staff of the department of agriculture government of Punjab, Pakistan and revealed that extension system is weak and extension workers are not considered fully competent to perform their job.

CONCLUSION AND RECOMMENDATIONS

Khyber Pakhtunkhwa is the most suitable place for horticulture development. However, the tempo of progress remained slow and sluggish due to many reasons/ factors and one of them is lack of Agriculture Extension staff and their negligence. Based on this study, some variations are pointed out between the existing and expected level of technical competencies in horticultural crops of AEOs. Their expectation to improve their skills in horticultural crops is very high in many aspects. Specialization and trainings have increased the competencies of AEOs, whereas on the other hand demographic factors like age, job experience, farming experience, qualification and the place of origin have no effect on technical competency. The differences between the expected and existing levels in technical competencies in horticultural crops suggest that the AEOs need in-service training in one competency of horticultural crops consisting of describe agricultural recommendations regarding floriculture.

Finally it is recommended to provide proper and required training facilities to the extension on staff from time to time they could cope with the any emerging challenges that may arise in future.

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